

## ABSTRACT OF THE DISCLOSURE

Sub 627

A method for producing a semiconductor device including formation of an interlayer insulating film having a fluorine-doped silicon oxide layer on a substrate. The method comprising the steps of forming the

5 fluorine-doped silicon oxide layer in a process chamber, and forming a silicon oxide layer on the fluorine-doped silicon oxide layer in the same process chamber subsequent to the formation of the fluorine-doped silicon oxide layer. The silicon oxide layer is formed at a temperature higher than a film forming temperature of the fluorine-doped silicon oxide layer thereby

10 forming the interlayer insulating film comprising the fluorine-doped silicon oxide layer and the silicon oxide layer formed thereon on the substrate.

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